

IN THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in this application.

Claims 1-11 (Canceled).

Claim 12 (Currently Amended): A highly phosphorylated acid β -glucocerebrosidase obtained by ~~the method of Claim 1~~ a process comprising:

- (a) contacting an acid β -glucocerebrosidase with an isolated GlcNAc phosphotransferase to produce a modified acid β -glucocerebrosidase; and
- (b) contacting said modified acid β -glucocerebrosidase with an isolated phosphodiester β -GlcNAcase.

Claim 13 (Original): A pharmaceutical composition comprising the highly phosphorylated acid β -glucocerebrosidase of Claim 12 and a pharmaceutically acceptable carrier.

Claim 14 (Original): A method of treating a patient suffering from Gaucher's disease, comprising administering to the patient in need thereof the highly phosphorylated acid beta-glucocerebrosidase of Claim 12 in an amount sufficient to treat said disease.

Claim 15 (Original): The method of Claim 14, further comprising administering acid β -glucocerebrosidase which is not highly phosphorylated.

Claim 16 (Original): A method of treating a bone tissue of a patient suffering from Gaucher's disease, comprising administering to the patient in need thereof the highly phosphorylated acid beta-glucocerebrosidase of Claim 12 in an amount sufficient to treat said disease.

Claim 17 (Original): The method of Claim 16, further comprising administering acid β -glucocerebrosidase which is not highly phosphorylated.

Claim 18 (Original): A method of treating a lung tissue of a patient suffering from Gaucher's disease, comprising administering to the patient in need thereof the highly phosphorylated acid beta-glucocerebrosidase of Claim 12 in an amount sufficient to treat said disease.

Claim 19 (Original): The method of Claim 18, further comprising administering acid β -glucocerebrosidase which is not highly phosphorylated.

Claims 20-61 (Cancelled).

Claim 62 (New): The highly phosphorylated acid- β -glucocerebrosidase of Claim 12, wherein the acid- β -glucocerebrosidase comprises the amino acid sequence of SEQ ID NO:26

Claim 63 (New): A method of preparing the highly phosphorylated acid β -glucocerebrosidase of Claim 12 comprising:

contacting an acid β -glucocerebrosidase with an isolated GlcNAc phosphotransferase to produce a modified acid β -glucocerebrosidase; and

contacting said modified acid β -glucocerebrosidase with an isolated phosphodiester β -GlcNAcase.

Claim 64 (New): The method of Claim 63, further comprising purifying said highly phosphorylated acid β -glucocerebrosidase after said contacting with the isolated phosphodiester α -GlcNAcase.

Claim 65 (New): The method of Claim 63, further comprising purifying said modified acid β -glucocerebrosidase prior to said contacting with the isolated phosphodiester β -GlcNAcase.

Claim 66 (New): The method of Claim 63, wherein said isolated GlcNAc phosphotransferase comprises an α subunit and β subunit.

Claim 67 (New): The method of Claim 66, wherein the GlcNAc phosphotransferase comprises the amino acid of SEQ ID NO:2.

Claim 68 (New): The method of Claim 63, wherein the GlcNAc phosphotransferase comprises SEQ ID NO:4 and SEQ ID NO:5.

Claim 69 (New): The method of Claim 63, wherein the GlcNAc phosphotransferase is encoded by a nucleotide sequence comprising SEQ ID NO:1, or a sequence that hybridizes under stringent conditions to SEQ ID NO:1.

Claim 70 (New): The method of Claim 63, The method of Claim 1, wherein the GlcNAc phosphotransferase is encoded by a nucleotide sequence comprising SEQ ID NO:3, or a sequence that hybridizes under stringent conditions to SEQ ID NO:3.

Claim 71 (New): The method of Claim 63, wherein the phosphodiester α -GlcNAcase comprises SEQ ID NO:17 or a sequence that hybridizes under stringent conditions to SEQ ID NO:17.

Claim 72 (New): The method of Claim 63, wherein the acid β -glucocerebrosidase comprises the amino acid sequence of SEQ ID NO:25 or SEQ ID NO:26.

Claim 73 (New): The method of Claim 63, wherein the acid- β -glucocerebrosidase comprises the amino acid sequence of SEQ ID NO:26.

Claim 74 (New): The method of Claim 63, which further comprises before said contacting in (a):

culturing transfected cells comprising a recombinant polynucleotide which encodes a recombinant acid β -glucocerebrosidase in the presence of at least one α 1,2-mannosidase inhibitor; and

recovering a high mannose recombinant acid β -glucocerebrosidase from said transfected cell.

Claim 75 (New): The method of Claim 74, wherein said at least one 1,2-mannosidase inhibitor is selected from the group consisting of deoxymannojirimycin, kifunensine, D-Mannonolactam amidrazone, and N-butyl-deoxymannojirimycin.

Claim 76 (New): The method of Claim 75, wherein the 1,2-mannosidase inhibitor is kifunensine.

Claim 77 (New): The method of Claim 75, wherein the 1,2 mannosidase inhibitor is deoxymannojirimycin.

Claim 78 (New): The method of Claim 75, wherein the at least one 1,2 mannosidase inhibitor is deoxymannojirimycin and kifunensine.

Claim 79 (New): The method of Claim 75, further comprising purifying said modified acid β -glucocerebrosidase prior to said contacting with the isolated phosphodiester α -GlcNAcase.